

## WHAT IS CLAIMED IS:

1           1.    For use with a network transceiver having a decoder and  
2    an encoder, a controller that controls operating modes of the  
3    network transceiver, comprising:

4                an encoder portion operable to direct said encoder to  
5    encode data in one of an industry-compliant mode and a custom mode;  
6    and

7                a decoder portion operable, in response to sensing data  
8    received in said custom mode at said decoder, to direct:

9                    said decoder to decode said received data in said  
10   custom mode and

11                  said encoder portion to direct said encoder to  
12   encode data in said custom mode.

13           2.    The controller for use with a network transceiver as  
14   recited in Claim 1 further comprising a state machine that includes  
15   at least two alternate states indicating whether said custom mode  
16   is enabled.

1           3.    The controller for use with a network transceiver as  
2    recited in Claim 1 wherein at least said decoder portion is  
3    embodied in a peripheral card that is couplable to a computer  
4    system to allow said computer system to process said decoded data.

1           4.    The controller for use with a network transceiver as  
2    recited in Claim 1 further comprising a reset portion that is  
3    operable to direct said controller to reset said operating mode of  
4    the network transceiver to said industry-compliant mode.

1           5.    The controller for use with a network transceiver as  
2    recited in Claim 4 wherein said reset portion is associated with  
3    said decoder portion and operates to direct said decoder portion  
4    to direct:

5                   said decoder to decode said received data in said  
6    industry-compliant mode and

7                   said encoder portion to direct said encoder to  
8    encode data in said industry-compliant mode.

1           6.    The controller for use with a network transceiver as  
2    recited in Claim 1 wherein said decoder portion is further  
3    operable, in response to sensing data received in said industry-  
4    compliant mode at said decoder, to direct said decoder to decode  
5    said received data from said industry-compliant mode.

1           7.    The controller for use with a network transceiver as  
2    recited in Claim 6 wherein said decoder portion is further operable  
3    to direct said encoder portion to control data transmission from  
4    said encoder in said industry-compliant mode.

1           8.    The controller for use with a network transceiver as  
2    recited in Claim 1 wherein said industry-compliant mode is  
3    compliant with IEEE 802.3ab.

1           9. For use with a network transceiver having a decoder, an  
2 encoder, and a controller associated therewith, a method of  
3 operating said controller to allow operating modes of the network  
4 transceiver to be monitored and controlled, said method comprising  
5 the steps of:

6           sensing data received at said decoder in one of an  
7 industry-compliant mode and a custom mode; and

8           directing said encoder, in response to sensing data  
9 received in said custom mode at said decoder, to encode data in  
10 said custom mode.

11           10. The method of operating the controller as recited in  
12 Claim 9 wherein said directing step further comprises directing  
13 said decoder to decode said received data from said custom mode.

14           11. The method of operating the controller as recited in  
15 Claim 9 further comprising the step of using a state machine having  
16 at least two alternate states to indicate whether said custom mode  
17 is enabled.

1           12. The method of operating the controller as recited in  
2 Claim 9 wherein at least a decoder portion of the controller is  
3 embodied in a peripheral card that is couplable to a computer  
4 system and said method further comprises the step of controlling  
5 communication of said decoded data from the network transceiver to  
6 said computer system.

7           13. The method of operating the controller as recited in  
8 Claim 9 further comprising the step of resetting said operating  
9 mode of the network transceiver to said industry-compliant mode.

1           14. The method of operating the controller as recited in  
2 Claim 13 wherein said resetting step comprises the step of  
3 directing:

4               said decoder to decode said received data from said  
5 industry-compliant mode and

6               said encoder to encode data in said industry-compliant  
7 mode.

1           15. The method of operating the controller as recited in  
2 Claim 9 wherein said directing step further comprises directing  
3 said encoder, in response to sensing data received in said  
4 industry-compliant mode at said decoder, to encode data in said  
5 industry-compliant mode.

6           16. The method of operating the controller as recited in  
7 Claim 9 wherein said directing step further comprises directing  
8 said decoder, in response to sensing data received in said  
9 industry-compliant mode at said decoder, to decode received data  
10 from said industry-compliant mode.

11           17. The method of operating the controller as recited in  
12 Claim 9 wherein said industry-compliant mode is compliant with IEEE  
13 802.3ab.

1           18. A network transceiver that is couplable to a computer  
2 system, comprising:

3           an encoder that encodes data to be transmitted by said  
4 network transceiver;

5           a decoder that decodes data received by said network  
6 transceiver; and

7           a controller, associated with said decoder and said  
8 encoder, that controls operating modes of said network transceiver,  
9 comprising:

10           an encoder portion operable to direct said encoder  
11 to encode data in one of an industry-compliant mode and a  
12 custom mode; and

13           a decoder portion operable, in response to sensing  
14 data received in said custom mode at said decoder, to direct:

15           said decoder to decode said received data in  
16 said custom mode and

17           said encoder portion to direct said encoder to  
18 encode data in said custom mode.

1           19. The network transceiver as recited in Claim 18 further  
2 comprising a state machine that includes at least two alternate  
3 states indicating whether said custom mode is enabled.

1           20. The network transceiver as recited in Claim 18 wherein at  
2           least said decoder portion is embodied in a peripheral card that is  
3           couplable to the computer system to allow the computer system to  
4           process said decoded data.

1           21. The network transceiver as recited in Claim 18 wherein  
2           said controller further comprises a reset portion that is operable  
3           to direct said controller to reset said operating mode of the  
4           network transceiver to said industry-compliant mode.

1           22. The network transceiver as recited in Claim 21 wherein  
2           said reset portion is associated with said decoder portion and  
3           operates to direct said decoder portion to direct:

4                   said decoder to decode said received data in said  
5                   industry-compliant mode; and

6                   said encoder portion to direct said encoder to  
7                   encode data in said industry-compliant mode.



1           23. The network transceiver as recited in Claim 18 wherein  
2           said decoder portion is further operable, in response to sensing  
3           data received in said industry-compliant mode at said decoder, to  
4           direct said decoder to decode said received data from said  
5           industry-compliant mode.

1           24. The network transceiver as recited in Claim 23 wherein  
2           said decoder portion is further operable to direct said encoder  
3           portion to control data transmission from said encoder in said  
4           industry-compliant mode.

5           25. The network transceiver as recited in Claim 18 wherein  
6           said industry-compliant mode is compliant with IEEE 802.3ab.

1           26. For use with a computer system having a network  
2 transceiver, a method of operating said network transceiver to  
3 allow operating modes thereof to be monitored and controlled, said  
4 method comprising the steps of:

5                 sensing data received at a decoder associated with said  
6 network transceiver in one of an industry-compliant mode and a  
7 custom mode; and

8                 encoding data to be transmitted by said network  
9 transceiver in response to sensing data received at said decoder in  
10 said custom mode.

11           27. The method of operating the network transceiver as  
12 recited in Claim 26 further comprising the step of decoding data in  
13 response to sensing data received at said decoder in said custom  
14 mode.

1           28. The method of operating the network transceiver as  
2 recited in Claim 26 further comprising the step of encoding data in  
3 said industry-compliant mode.

1           29. The method of operating the network transceiver as  
2 recited in Claim 26 further comprising the step of decoding data in  
3 said industry-compliant mode.

1           30. The method of operating the network transceiver as  
2 recited in Claim 26 wherein the network transceiver comprises a  
3 controller associated with said decoder and said encoder, and said  
4 method further comprises the step of using said controller to  
5 direct said encoder to encode data in one of an industry-compliant  
6 mode and said custom mode.

1           31. The method of operating the network transceiver as  
2 recited in Claim 30 wherein said using step further comprises  
3 directing said decoder to decode said received data from said  
4 custom mode.

1           32. The method of operating the network transceiver as  
2 recited in Claim 26 further comprising the step of using a state  
3 machine having at least two alternate states to indicate whether  
4 said custom mode is enabled.

1           33. The method of operating the network transceiver as  
2 recited in Claim 26 wherein at least a portion of the network  
3 transceiver is embodied in a peripheral card that is couplable to  
4 a computer system and said method further comprises the step of  
5 controlling communication of said decoded data from the network  
6 transceiver to the computer system.

1           34. The method of operating the network transceiver as  
2 recited in Claim 26 further comprising the step of resetting said  
3 operating mode of the network transceiver to said industry-  
4 compliant mode.

1           35. The method of operating the network transceiver as  
2 recited in Claim 34 wherein said resetting step comprises the steps  
3 of directing:

4               said decoder to decode said received data in said  
5 industry-compliant mode and

6               said encoder to encode data in said industry-compliant  
7 mode.

1           36. The method of operating the network transceiver as  
2 recited in Claim 26 further comprising the step of directing said  
3 encoder, in response to sensing data received in said industry-  
4 compliant mode at said decoder, to encode data in said industry-  
5 compliant mode.

1           37. The method of operating the network transceiver as  
2 recited in Claim 26 further comprising the step of directing said  
3 decoder, in response to sensing data received in said industry-  
4 compliant mode at said decoder, to decode received data from said  
5 industry-compliant mode.

1           38. The method of operating the network transceiver as  
2 recited in Claim 26 wherein said industry-compliant mode is  
3 compliant with IEEE 802.3ab.

1           39. A computer system for association with an Ethernet  
2 network, comprising:

3           a processing unit;

4           a memory, associated with said processing unit;

5           an Ethernet transceiver, associated with said processing  
6 unit and said memory, that associates said computer system with  
7 said Ethernet network, said Ethernet transceiver comprising:

8           an encoder that encodes data to be transmitted by  
9 said Ethernet transceiver over said Ethernet network;

10          a decoder that decodes data received by said  
11 Ethernet transceiver over said Ethernet network; and

12          a controller, associated with said decoder and said  
13 encoder, for controlling operating modes of said Ethernet  
14 transceiver, said controller operable to (i) negotiate a  
15 communications channel between said computer system  
16 and another computer system associated with said Ethernet  
17 network, said computer system entering one of a  
18 master state and a slave state, (ii) direct, in response to  
19 entering said master state, said encoder to encode data to be  
20 transmitted to said another computer in an industry-  
21 compliant mode and, if said encoded data is not properly  
22 received by said another computer, to encode data to be

transmitted to said another computer in a custom mode,  
(iii) direct, in response to entering said slave state, said  
decoder to decode data received from said another computer in  
said industry-compliant mode and, if said received data cannot  
properly be decoded, to decode said received data in said  
custom mode.

40. The computer system as recited in Claim 39 wherein said  
controller is further operable to direct, in response to entering  
said master state, said decoder to decode data received from said  
another computer in one of said industry-compliant mode and said  
custom mode.

41. The computer system as recited in Claim 39 wherein said  
controller is further operable to direct, in response to entering  
said slave state, said encoder to encode data to be transmitted to  
said another computer in one of said industry-compliant mode and  
said custom mode.

1           42. The computer system as recited in Claim 39 wherein said  
2 controller is further operable to direct, in response to entering  
3 said slave state, said encoder to encode data to be transmitted to  
4 said another computer in one of said industry-compliant mode and  
5 said custom mode.



1           43. A computer system for association with an Ethernet  
2 network, comprising:

3           a processing unit;

4           a memory, associated with said processing unit;

5           an Ethernet transceiver, associated with said processing  
6 unit and said memory, that associates said computer system with  
7 said Ethernet network, said Ethernet transceiver comprising:

8           an encoder that encodes data to be transmitted by  
9 said Ethernet transceiver over said Ethernet network;

10           a decoder that decodes data received by said  
11 Ethernet transceiver over said Ethernet network; and

12           a controller, associated with said decoder and said  
13 encoder, for controlling operating modes of said Ethernet  
14 transceiver, said controller operable to (i) negotiate a  
15 communications channel between said computer system  
16 and another computer system associated with said Ethernet  
17 network, said computer system entering one of a  
18 master state and a slave state, (ii) direct, in response to  
19 entering said master state, said encoder to encode data to be  
20 transmitted to said another computer in a custom mode and, if  
21 said encoded data is not properly received by said another  
22 computer, to encode data to be transmitted to said another

23 computer in an industry-compliant mode, (iii) direct, in  
24 response to entering said slave state, said decoder to decode  
25 data received from said another computer in said custom mode  
26 and, if said received data cannot properly be decoded, to  
27 decode said received data in said industry-compliant mode.

1 44. The computer system as recited in Claim 43 wherein said  
2 controller is further operable to direct, in response to entering  
3 said master state, said decoder to decode data received from said  
4 another computer in one of said industry-compliant mode and said  
5 custom mode.

1 45. The computer system as recited in Claim 43 wherein said  
2 controller is further operable to direct, in response to entering  
3 said slave state, said encoder to encode data to be transmitted to  
4 said another computer in one of said industry-compliant mode and  
5 said custom mode.

1           46. The computer system as recited in Claim 43 wherein said  
2 controller is further operable to direct, in response to entering  
3 said slave state, said encoder to encode data to be transmitted to  
4 said another computer in one of said industry-compliant mode and  
5 said custom mode.

1           47. A computer system for association with an Ethernet  
2 network, comprising:

3           a processing unit;  
4           a memory, associated with said processing unit;  
5           an Ethernet transceiver, associated with said processing  
6 unit and said memory, that associates said computer system with  
7 said Ethernet network, said Ethernet transceiver comprising:

8           an encoder that encodes data to be transmitted by  
9 said Ethernet transceiver over said Ethernet network;

10           a decoder that decodes data received by said  
11 Ethernet transceiver over said Ethernet network; and

12           a controller, associated with said decoder and said  
13 encoder, for controlling operating modes of said Ethernet  
14 transceiver, said controller (i) negotiates a communications  
15 channel between said computer system and another computer  
16 system associated with said Ethernet network, said computer  
17 system entering one of a master state and a slave state, and  
18 (ii) repeatedly directs, in response to entering one of said  
19 master state and said slave state, said encoder to encode data  
20 to be transmitted to said another computer in one of an  
21 industry-compliant mode and a custom mode until said encoded  
22 data is properly received by said another computer.

23           48. The computer system as recited in Claim 47 wherein said  
24 controller is further operable to decode data received from said  
25 another computer in one of said custom mode and said industry-  
26 compliant mode.

1           49. The computer system as recited in Claim 47 wherein said  
2 controller is further operable to terminate said repeatedly  
3 encoding data in said one of an industry-compliant mode and a  
4 custom mode as a function of a threshold.

5           50. The computer system as recited in Claim 47 wherein said  
6 controller is further operable to randomly select one of said  
7 industry-compliant mode and said custom mode and to encode data to  
8 be transmitted to said another computer in said randomly selected  
9 one of said industry-compliant mode and said custom mode.

1           51. The computer system as recited in Claim 47 wherein said  
2 controller is further operable to randomly select one of said  
3 industry-compliant mode and said custom mode in response to said  
4 encoded data is not properly received by said another computer and  
5 to encode data to be transmitted to said another computer in said  
6 randomly selected one of said industry-compliant mode and said  
7 custom mode.